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**United States Patent** [19]

Comerford et al.

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[54] **SYSTEM FOR INTEGRATING POINTING FUNCTIONS INTO COMPUTER KEYBOARD WITH LATERAL MOVEMENT OF KEYSWITCH MOUNTING PLATE CAUSING STRAIN AND CONTROL SIGNAL**

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[58] **Field of Search:** 395/800, 275; 341/22; 340/711, 709

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[57] **ABSTRACT**

A device providing pointing device functions in a keyboard without requiring the keyboard operator to remove any fingertip from the keys. A computer keyboard keyswitch mounting plate is supported for horizontal displacement against a resistive force. A transducer for measuring the force exerted in the plane of the keyboard key tops is attached between the keyboard case and the keyswitch mounting plate. The direction and magnitude of the force can be measured and encoded so they may be used to emulate the signals generated by a pointing device. The operator may elect a pointing device mode by merely applying sufficient force along the plane of the surface of the key tops, thus switching from a keyboard mode to a pointing device mode, without moving the fingers from a typing position.

**11 Claims, 7 Drawing Sheets**

